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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/685,867	10/14/2003	Horst Haussecker	INTEL1330-1(P14242X)	6650

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EXAMINER

LE, BRIAN Q

ART UNIT PAPER NUMBER

2623

DATE MAILED: 07/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/685,867

Applicant(s)

HAUSSECKER ET AL

Examiner

Brian Q. Le

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 15-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 24-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/14/2003</u> | 6) <input type="checkbox"/> Other: _____ |

Election/Restrictions

1. Applicant's election without traverse of Group I, consisting of claims 1-14 and 24-29 in the reply, filed on 04/08/2005 is acknowledged.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 13 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Regarding claim 13, the concept of "parameter ranges of known biomolecules are used to constrain the possible values of the estimated parameters" is not found in the original disclosure.

Claim Objections

4. Claims 1-14 and 24-29 are objected to because these claims are very difficult to understand due to the use of confusing language. Appropriate correction is required. The prior art rejection based on the Examiner's best understanding. The usage of term "subject" is improper in the claims language. Perhaps, "object" will be a better replacement for the claims language. Regarding claim 14, the term "combing" may be misspelled.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-7, and 12-28 and are rejected under 35 U.S.C. 102(b) as being anticipated by

Kley U.S. Patent No. 6,396,054.

Regarding claim 1, Kley teaches a method comprising:

a) imaging a subject by at least two different modalities (different modes) of scanning probe microscopy (SPM) (column 2, lines 24-28);

b) using a model of the physical structure of the subject to analyze the image (column 4, lines 63-67);

c) estimating the values of one or more parameters from the images (AFM and STM measurements) (column 10, lines 15-16); and

d) fusing the estimated parameters obtained from the different images (column 19, lines 20-50).

For claim 2, Kley teaches the method of claim 1, wherein parameter fusion is based on the model of the physical structure of the subject (gathering data/producing data) (column 19, lines 20-50).

Referring to claim 3, Kley teaches the method further comprising using the fused parameters to characterize the subject (color mapping tool and histogram to characterize topographic data point of images) (column 21, lines 34-50).

Regarding claim 4, Kley also teaches the method further comprising identifying the subject (structure identification) (column 19, lines 14-17).

For claim 5, Kley discloses the method further comprising comparing the fused parameters with parameters determined from known subjects to identify an occurrence of a known subject (topography)(column 4, lines 65-67).

Regarding claim 6, Kley (as discussed in claim 1) teaches the SPM imaging includes at least two modalities selected from the group consisting of scanning tunneling microscopy (STM) (column 2, lines 24-37).

For claim 7, Kley shows the method wherein the subject is a biomolecule (semiconductor material) (column 13, lines 65-67 through column 14, line 1).

For claim 12, Kley also teaches the method further comprising known biomolecule structures to obtain ranges of parameters for each type of biomolecule (column 13, lines 60-67).

Regarding claim 13, Grand further teaches the method wherein the parameter ranges for known biomolecules are used to constrain (data format) the possible values of the estimated parameters (column 14, lines 25-32).

For claim 14, Kley further teaches the method wherein the subject is aligned on a surface by molecular combing (column 17, lines 45-54 and column 28, lines 20-25).

For claim 24, please refer back to claims 1 and 14 for teachings and explanations. In addition, Kley further teaches controller (FIG. 26, "controller", element 114) to control the operation of the scanning probe microscope and memory (FIG. 26, "memory", element 124) to include one or more characterizations of known structures.

For claim 25, please refer back claim 5 for the teachings and explanations.

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Regarding claim 26, Kley discloses the system wherein the characterizations of known structures are used to analyze a set of SPM images (column 4, lines 63-67 through column 5, 5-16).

For claim 27, Kley teaches the system wherein the SPM images are obtained by two or more SPM modalities (column 2, lines 24-28).

For claim 28, please refer back to claim 5 for the teachings and explanations.

For claim 29, please refer to claim 1 for teachings and explanations. In addition, Kley further teaches step of analyzing images and reanalyzing the data (column 4, lines 63-67; column 7, lines 5-10; column 11, lines 60-67).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Kley U.S. Patent No. 6,396,054 and Grand et al. "Epitaxial growth of copper phthalocyanine monolayers on Ag(111)", Surface Science, vol. 366, no. 3, 1 November 1996.

Regarding claim 8, Kley does not explicitly teach the method wherein the parameters are estimated by level set techniques, PDE (partial differential equation) techniques. Grand teaches the method wherein the parameters are estimated by level set techniques, PDE (partial differential equation) techniques (page 404, column 1, 3rd paragraph). Modifying Kley's method of utilizing scanning probe microscopy according to Grand would be able to use partial differential

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equation as an estimation tool in estimating parameters. This would improve processing and therefore, it would have been obvious to one of the ordinary skill in the art to modify Kley according to Grand.

For claim 9, Grand also teaches a method further comprising embedding the techniques in a probabilistic estimation framework (Page 405, column 1, last 15 lines and page 406, column 1, 1st 15 lines).

Regarding claim 10, Grand teaches the method further comprising classifying the subject by applying vector quantization, support vector machines (FIG. 7). Modifying Kley's method of utilizing scanning probe microscopy according to Grand would be able to further classify fused parameter. This would improve processing and therefore, it would have been obvious to one of the ordinary skill in the art to modify Kley according to Grand.

Referring claim 11, Grand teaches the method further comprising using known biomolecule structures to generate training sets of data (page 405, 1st column, last 10 lines).

Double Patenting

9. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

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A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

10. Claims 1-13 and 24-29 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-13 and 23-28 of copending Application No. 10/273,312. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

Contact Information

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Q Le whose telephone number is 571-272-7424. The examiner can normally be reached on 8:30 A.M - 5:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on 571-272-7414. The fax phone numbers for the organization where this application or proceeding is assigned are 571-273-8300 for regular communications and 571-273-8300 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

BL
June 29, 2005



SAMIR AHMED
PRIMARY EXAMINER

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